

SWARTHMORE COLLEGE,

1885--86.

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college


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SWARTHMORE COLLEGE.



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SEVENTEENTH  
ANNUAL CATALOGUE  
OF  
SWARTHMORE COLLEGE,

*SWARTHMORE, PA.*

1885-86.

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PRESS OF  
FRIENDS' BOOK ASSOCIATION,  
S. W. Cor. 15th and Race Streets, Philadelphia.



# CALENDAR.

1885-86.

1885.	Ninth Month, 8th,	Third-day,	Meeting of the Board of Managers.
"	Ninth Month, 8th,	Third-day,	Examinations for admission begin.
"	Ninth Month, 10th,	Fifth-day,	Examinations for admission completed, and old students return.
"	Ninth Month, 11th,	Sixth-day,	Regular Exercises begin.
"	Eleventh Month, 30th,	Second-day,	Meeting of the Board of Managers.
"	Twelfth Month, 1st,	Third-day,	<i>Annual Meeting of Stockholders.</i>
"	Twelfth Month, 1st,	Third-day,	Meeting of the Board of Managers.
"	Twelfth Month, 23rd,	Fourth-day, P. M.	Holidays begin.
1886.	First Month, 4th,	Second-day,	Students return for roll-call at 8 P. M.
"	First Month, 5th,	Third-day,	Regular Exercises begin.
"	Third Month, 1st,	Second-day,	Candidates for degrees present Theses.
"	Third Month, 9th,	Third-day,	Meeting of the Board of Managers.
"	Fourth Month, 1st,	Fourth-day,	Spring Recess begins.
"	Fourth Month, 8th,	Fourth-day,	Students return for roll-call at 8 P. M.
"	Fifth Month, 24th,	Second-day,	Senior Examinations begin.
"	Fifth Month, 31st,	Second-day,	Senior Examinations completed, the results announced, and parts for Commencement assigned.
"	Sixth Month, 7th,	Second-day,	Final Examinations begin.
"	Sixth Month, 11th,	Sixth-day,	} Examinations for Admission.
"	Sixth Month, 12th,	Seventh-day,	
"	Sixth Month, 14th,	Second-day,	Class Day Exercises.
"	Sixth Month, 14th,	Second-day,	Meeting of the Board of Managers.
"	Sixth Month, 14th,	Second-day,	Annual Business Meeting of the Alumni Association.
"	Sixth Month, 15th,	Third-day,	<i>Commencement.</i>
"	Ninth Month, 14th,	Third-day,	Meeting of the Board of Managers.
"	Ninth Month, 14th,	Third-day,	Examinations for admission begin.
"	Ninth Month, 16th,	Fifth-day,	Examinations for admission completed, and old students return.
"	Ninth Month, 17th,	Sixth-day,	Regular Exercises begin.
"	Twelfth Month, 6th,	Second-day,	Meeting of the Board of Managers.
"	Twelfth Month, 7th,	Third-day,	<i>Annual Meeting of Stockholders.</i>
"	Twelfth Month, 7th,	Third-day,	Meeting of the Board of Managers.
"	Twelfth Month, 23rd,	Fifth-day, P. M.	Holidays begin.
1887.	First Month, 3rd,	Second-day,	Students return for roll-call at 8 P. M.
"	First Month, 4th,	Third-day,	Regular Exercises begin.



# CORPORATION.

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*Term expires Twelfth Month, 1887.*

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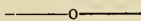
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*Term expires Twelfth Month, 1889.*

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Prof. ARTHUR BEARDSLEY.

Prof. WILLIAM HYDE APPLETON.

Prof. SUSAN J. CUNNINGHAM.

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Prof. HENRY W. ROLFE.

Asst. Prof. ELIZABETH C. MILLER.

Asst. Prof. FERRIS W. PRICE.

WILLIAM J. HALL, Superintendent.

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\*BY-LAW IX.—“The President, Matron and such of the resident Professors and others as may be elected by the Board, shall constitute the Faculty. They shall hold regular meetings, arrange the course of study, determine the qualifications for admission and for graduation, decide upon rules of order, and determine all questions pertaining to the discipline or instruction, subject to the approval of the Executive Committee, to whom they shall report monthly.”

## OFFICERS OF INSTRUCTION.\*

—:O:—

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*Instructor in Practical Carpentry and Joinery.*

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*Director of Physical Culture.*

**SUSAN P. STACKHOUSE, M. D.,**

*Lecturer on Physiology and Hygiene to the young women.*

**OLIVIA RODHAM,**

*Assistant Librarian.*

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\*Arranged, with the exception of the President, in the order of appointment, by classes: Professors, Assistant Professors and Instructors.

## GENERAL INFORMATION.

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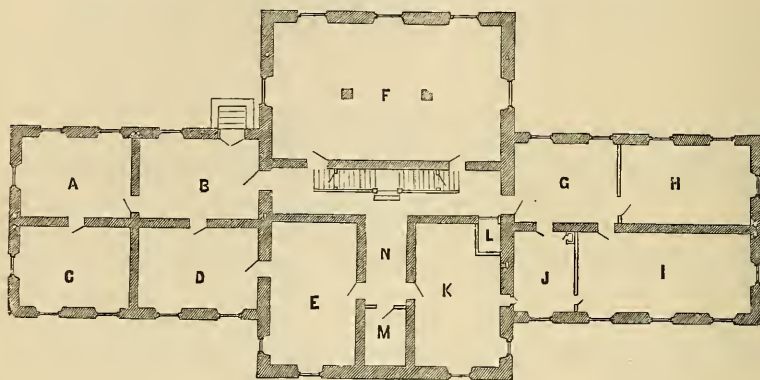
**Swarthmore College** was founded by members of the religious Society of Friends, in order to provide the children of the Society and others with opportunities for higher education under guarded care. With this object in view, a property of 240 acres was secured in a rural district ten miles from Philadelphia, on the Central Division of the P. W. and B. Railroad. It is accessible by trains, from the Broad St. station, sixteen times daily. About half the land is used for farming purposes, providing milk and vegetables for the College; the remainder is devoted to lawn and pleasure grounds. Crum Creek, which forms the western boundary of the property, affords facilities for boating, bathing and skating. The portion of the grounds bordering the stream is of great picturesque beauty. The building site is high, thus securing perfect drainage and pure air, and commanding a fine view of the surrounding country for many miles.

**The Principal College Building** is a massive stone structure 348 feet long. It consists of a central building four stories high, containing public rooms such as Lecture Rooms, Museum, Library, Reading Room, Parlors, Dining Hall, etc. Fire proof compartments separate this building from the two wings. The latter are each three stories high. The ground floors are devoted to lecture and recitation rooms; the remaining floors in the East Wing contain the dormitories of the young women, and in the West Wing, those of the young men. The sexes mingle freely under proper care in the class rooms, parlors, and dining hall. The instructors reside in the same building with the students, and the relations between them are such, that there is comparative freedom from the dangers and temptations ordinarily incident to college life. The buildings are heated throughout by steam, lighted by gas, and thoroughly ventilated.

**The Science Hall** is constructed of stone, in the most durable manner, and was planned with special reference to the work of students in Engineering and Chemistry. The centre building has a frontage of 44 feet, and a depth of 64 feet; the wings are each 43 x 33 feet.



The following floor plans will explain the arrangement of the several floors, and the uses to which they are applied:—



BASEMENT.

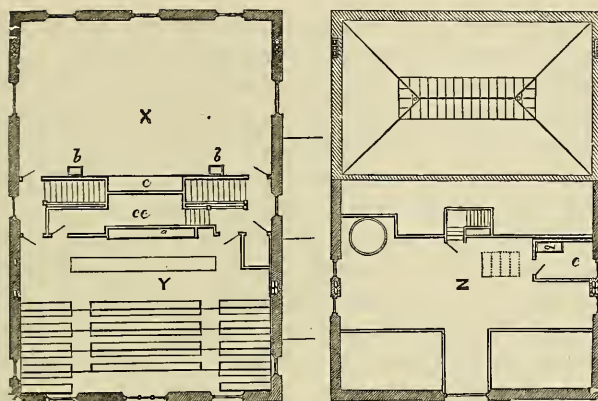
A. Blacksmith Shop, containing complete sets of blacksmith's tools: forges, anvils, vises, &c. B. Boiler Room and room for grinding and polishing, containing a vertical tubular boiler, and grindstone and emery wheels. C. Brass Foundry, with its crucible furnace, oven for baking cores, Founder's benches, &c. D. & E. Communicating rooms devoted to wood working and pattern-making: containing lathes, benches, &c. F. One of the two rooms devoted to the Physical Laboratory, and intended for such apparatus as requires very solid foundations. G. Unpacking room of the chemical department. H. I. J. Store-rooms. K. Metallurgical Laboratory, which contains also the gasometers for supplying the laboratories and lecture room with Oxygen and Hydrogen gases.



FIRST FLOOR.

O. Engineering Lecture and Recitation Room. P. Mechanical Laboratory and Machine Shop, containing all the tools and appliances generally found in first-class machine shops. Power is obtained by an engine driven by steam either from the main college boilers or from the shop boiler, at pleasure.

Q. Physical Laboratory. R. Wardrobe. S. Engineering Field Instruments, &c. T. Quantitative Laboratory with all necessary appliances. U. Balance Room and Chemical Library. V. Private Room of the Professor of Chemistry. W. Qualitative Laboratory.



SECOND FLOOR AND ATTIC

X. Drawing Room, lighted by a sky light and by large North windows. Y. Lecture Room, with large hood and lecture table, supplied with Oxygen and Hydrogen. Z. Photographic Room, with North skylight and dark room.

*An Astronomical Observatory* is in process of construction, and it is hoped that it will be finished by the end of the present year. It will be furnished with a Transit Instrument, a Clock and Chronograph, an Equatorial Telescope and a Spectroscope. The object glass of the transit instrument will be three inches in diameter, that of the equatorial, six inches. The latter glass is from Alvan Clark & Sons; the mounting by Warner & Swazey, of Cleveland, Ohio.

*Other Buildings* are a Meeting House, the President's House, the West House (birth-place of Benjamin West), now used as a Professor's residence, the Farmer's house, and commodious farm buildings, the Laundry and Bakery, and the Boiler house, containing the sectional boilers for heating and cooking purposes. All these buildings are constructed of stone.

*The Libraries* of the college collectively contain 10,749 volumes, as follows:—

<i>The General Library</i> .....	7714 vols.
<i>Literary Societies' Libraries</i> .....	2177 vols.
<i>Friends' Historical Library</i> .....	858 vols.

Members of the senior class are permitted, under proper regulations, to consult the Philadelphia Library, containing 145,000 volumes, and the Mercantile Library, containing 150,000 volumes. The

general Library is at all times accessible to the college students, and at stated times to the pupils of the Preparatory school.

Friends' Historical Library founded by the late Anson Lapham, of Skaneateles, N. Y., consists of Friends' Books, photographs of representative Friends, and manuscripts relating to the Society and its history, and is, upon application to the Librarian, accessible to teachers, students and members of the household.

This collection is stored in a fire proof apartment, and it is hoped that Friends and others will deem it a secure place to deposit books and other material in their possession which may be of interest in connection with the history of the Society. Such contributions should be sent to the Librarian, *Arthur Beardsley, Swarthmore, Pa.*

**The Reading Room**, supplied with the leading Literary and Scientific journals, and the prominent newspapers of the principal cities, is open to students at all times except during regular hours for study and recitations.

**The Museum** occupies the entire fourth floor of the center building. It embraces collections in Geology, Mineralogy, Zoology, and Botany. It is a working collection used constantly in the classes. A Biological Laboratory has been opened in connection with the Museum, supplied with microscopes and other apparatus necessary for carrying on Biological work. Contributions of material or money for the museum should be sent to the Curator, *Dr. Joseph Leidy, Swarthmore, Pa.*

**Literary Societies** are maintained by the students. There are two for young men, and one for young women. These hold regular meetings for the reading of Essays, etc., and for practice in debates. Their Libraries, under their own management, contain over two thousand volumes, and are accessible to all of the college students.

A Scientific Society is also maintained by the students interested in Science.

**The Gymnasium** has recently been supplied with a full set of apparatus for exercising according to the system of Dr. Sargent. The exercises are conducted in separate classes for the young men and young women, and are required of all. A large room in the main building also is set apart for the exercises of the young women; students are encouraged to take regular daily exercise in the open air, for which the extensive grounds connected with the college afford ample facilities.

**Religious Exercises** —While care is taken to inculcate the doctrine that religion is a matter of practical daily life, and is not confined to the observance of set forms or the promulgation of religious tenets, the regular assembling for religious purposes is carefully observed. On First-day morning a religious meeting is held, attended by students, teachers, and members of the household, and occasionally by visiting Friends. The meeting is preceded by First-day school exercises, consisting of the recitation of passages of Scripture prepared by members of the different classes, and the reading of a portion of Scripture at the close. The daily exercises are opened by a general meeting for reading selected portions of Scripture, or other suitable books, and for imparting such moral lessons as circumstances seem to require, followed by a period of silence before entering upon the duties of the day.

**Leave of Absence** cannot be granted without a *written* request from parents or guardians, which request should not be made oftener than once a month, and, in all cases, should be accompanied by reasons satisfactory to the Faculty.

Students may be visited, on week-days, by parents or guardians, or by near relatives, or others approved by parents or guardians; but general visiting is discouraged. *Students must not be interrupted in their studies or recitations at any time; nor must they be visited on the First-day of the week.*

All persons who are interested in education, and who are desirous of examining the methods of instruction and discipline at Swarthmore, will be welcomed at any time, and should, when convenient, communicate with the President upon the subject in advance.

**Outfit.**—Although no form of dress is prescribed for either sex, such simple attire as is appropriate to school life is earnestly recommended. Ear-rings, bracelets, necklaces, and elaborately trimmed dresses are prohibited.

Students should be supplied with six towels, six napkins, two clothes-bags, a wrapper, slippers, umbrella, and the requisite toilet articles. Each girl must be provided with a dress, suitable for practicing in the Gymnasium. Every article must be marked with the full name of the owner.



*The Use of Tobacco* being strictly prohibited, those addicted to its use, unless prepared to renounce it entirely, should not apply for admission.

**Commencement and Vacations.**—The college year begins on the second Third-day of Ninth Month, and closes with commencement day, which occurs on the third Third-day of Sixth Month.

Students are not admitted for a period less than the current college year, but when vacancies exist, may enter at any time during the year.

Besides the summer vacation, there will be a recess of ten days at the close of the Twelfth Month, and one of a week in the Fourth Month. (See Calendar).

Students are permitted to remain at the college, under care, during the recesses, but not during the summer vacation.

**Preparatory Schools.**—Besides the College proper the Institution embraces a preparatory school. The pupils of this school receive instruction from teachers employed especially for this purpose, and also from professors and instructors of the college.

This school receives those pupils who are not sufficiently advanced in their studies to enter the college. The point of advancement requisite for admission to the college will be found explained on pages 17 and 18 of this catalogue.

*Parents are requested to examine the requirements for admission and, whenever it is practicable, to have their sons and daughters prepared to enter the Freshman Class.*

On page 19 will be found a list of schools which are authorized to prepare students for the college. Candidates for the Freshman Class recommended from these schools will be admitted without examination.

**The Household.**—In the organization of this Institution, unusual care has been extended to the personal comfort and the social interests of the students. This department is in charge of the Matron with able assistants. She has also special oversight of the conduct and health of the young women and girls, and parents are desired to communicate freely with her in regard to the welfare of their daughters.

## EXPENSES.

*In the College*, the cost of Board and Tuition is \$450 per year, of which \$250 is payable in advance, and \$200 on the first of First month.

*In the Preparatory School* the charges are \$350 per year, of which \$200 is payable in advance, and the rest on the first of First month.

A deduction of \$100 per year is made from the above charges to all students who are children of members of the Religious Society of Friends.

*For Day Scholars* the price is \$200 per year in the College and \$150 per year in the Preparatory School; of which \$100 is payable in advance and the remainder on the first of First month. A deduction of \$50 per year is made from these charges to all students who are children of members of the Religious Society of Friends. The day scholars dine with the resident students.

*Books are Furnished* for the use of all students without expense, but they buy their own stationery, drawing implements and certain tools and materials used in the work-shop. Students taking Laboratory Courses make a deposit of \$10 at the beginning of the course, to cover the expense of the material used. The unexpended balance is returned at the end of the course.

*In Case of Sickness* no extra charge is made unless a physician is employed,

Boys are allowed the washing of one dozen plain pieces weekly; and girls, the washing of sixteen plain pieces weekly. Extra washing is paid for at fixed rates.

The price being made as low as Experience shows to be compatible with prudence, while many of our expenses are annual in their character, and teachers and other officers at fixed yearly salaries must be engaged in proportion to the number of students entered, we cannot, in case of withdrawal, return the full proportionate amount paid, without loss. When the connection of a student with the Institution shall terminate by sickness, or any other cause approved by the Faculty, before the end of the period for which payment has been made, the student may have the privilege of sending an approved substitute, for the unexpired term, or may apply, in writing, to the Treasurer, and a return will be made of two-thirds of the amount pre-paid, from the date of said application or written notice that the place is vacated.

The above prices may be depended upon as covering all necessary expenses, as there are no other extra charges.

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### PAYMENTS.

Payments are to be made by check or draft to the order of

ROBERT BIDDLE, TREASURER,  
No. 511 COMMERCE STREET, PHILADELPHIA.

# THE COLLEGE.

## INTRODUCTORY.

The studies required for a degree extend over four years. The requirements for admission are intended to be such as Friends' Schools generally can meet. Owing to the enforcement of regular hours for study and the absence of all opportunity for dissipation, the amount accomplished in four years is large, and for graduation the requirements will be found to compare favorably with those at other colleges. The courses are believed to afford a sufficient preparation in classics, science and general culture, for the ordinary avocation of life, for the studies of any of the learned professions, or for the pursuit of special study in the higher universities, at home or abroad.

We do not attempt to lay down a rigid course of study alike for all. A few subjects are prescribed but the others are left to be selected by parents according to the bent of mind or the aim in life of the student.

In selecting the courses leading to the degree of *Bachelor of Arts*, the student may confine his attention chiefly to Latin, Greek and Mathematics, or he may substitute the Greek and Mathematics largely by modern languages, science and history.

For the degree of *Bachelor of Science*, a definite amount of science is prescribed, but the student may take the greater number of the required courses in a special science as Biology, Chemistry or Engineering, or he may make his work more general by including a number of different subjects.

The degree of *Civil Engineer* is given as a second degree to Engineering students three years after graduation.

The courses leading to the degree of *Bachelor of Letters*, will meet the wants of those who do not wish to study the ancient languages, nor to take so much science as is required for the degree of B. S. The leading courses of candidates for this degree are modern languages including English, and History.



**TIME AND CONDITIONS OF ADMISSIONS.**

To secure places, application for admission should be made as early as possible by letter to the President.

All applicants must submit satisfactory testimonials of good character from their last teachers, and students coming from another college must present certificates of honorable dismissal.

The examinations for admission may be taken either in the Summer at the close of the College-year, or in the Fall. The times are as follows for the year 1886:—

**SUMMER EXAMINATIONS.**

Sixth-day, Sixth Mo., 11th, at 2 P. M. . . . .	Mathematics.
“ “ “ “ “ 3.30 P. M. . . . .	English.
Seventh-day, “ “ 12th, “ 8.15 A. M. . . . .	History.
“ “ “ “ “ 9.15 A. M. . . . .	Geography.
“ “ “ “ “ 10.15 A. M. . . . .	Latin, German or French.
“ “ “ “ “ 2 P. M. . . . .	Greek.

Arrangement can be made for board at the College during the above examinations.

**FALL EXAMINATIONS.**

Candidates should present themselves at the College on the afternoon of Third-day, Ninth Mo., 14th, 1886.

The examinations will occur as follows:

Fourth-day, Ninth Mo., 15th, 8.15 A. M. . . . .	Mathematics.
“ “ “ “ “ 9.15 A. M. . . . .	English.
“ “ “ “ “ 10.15 A. M. . . . .	History and Geography.
“ “ “ “ “ 2 P. M. . . . .	Latin, German or French.
“ “ “ “ “ 3 P. M. . . . .	Greek.

**REQUIREMENTS FOR ADMISSION.**

Candidates for admission to the Freshman Class will be examined in the following subjects:

1. **MATHEMATICS.**—*Arithmetic.*—Fundamental Rules, Fractions, (common and decimal) Denominate Numbers, Percentage and its applications, Proportion, and the Metric System.

*Algebra.*—Through Equations of the second degree of one unknown quantity.

\* *Geometry.*—The first four books of Davies's Legendre's Geometry; or an equivalent amount from another author.

2. **ENGLISH.**—The Candidate will be asked to write a few pages upon some assigned subject, or from dictation. It will be examined with reference to Grammar, Spelling, Paragraphing, Punctuation

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\* For 1886—87, and thereafter, the requirement in Mathematics will embrace the whole of Plane Geometry.

and the use of Capitals. An examination will also be given in the principles of the grammar.

3. HISTORY.—A general outline of the history of the United States and of England, with the principal dates; the principal facts and dates in Grecian History. In this connection there will be an examination in Ancient Geography, particularly that of Italy, Greece and Asia Minor.

4. GEOGRAPHY.—The general facts of Physical Geography. Descriptive and Political Geography, especially of the United States and Europe.

*In addition to the above, the Candidate will be examined in one of the following subjects as he may elect:*

5. LATIN.—Harkness's Composition, first thirty lessons; Cæsar's Gallic War, first two books; Virgil's Aeneid, first four books.\*

6. FRENCH.—The Candidate should be familiar with the Grammar; especially with the formation and use of Verbs. He should be able to read easy French at sight, and to translate simple English sentences into French. For this preparation, which should occupy two years, Magill's Grammar and Reader, and Magill's Prose and Poetry are recommended: or French Classics may be read.

GERMAN.—The preparation in German should occupy two years; the first year being devoted to the Grammar and Reader and to writing Exercises; and the second year to reading German Classics with a review of the Grammar. The Candidate should be able to read easy German at sight, and to translate simple English sentences into correct German.

Candidates who are prepared in both French and German, may offer half the above amount, equivalent to one year's study of each.

Candidates for the *Classical Section* must pass the above examination in *Latin*.

*Greek* is not required for admission, but students who have been prepared in Greek may continue in that language with students in the higher college classes.

Candidates for the *Scientific Section* who have had no opportunity to prepare in Latin, French or German, will not be rejected on account of such deficiency if they are otherwise qualified. An

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\* For 1886-87 and thereafter, the requirements in Latin will embrace 4 books of Cæsar's Gallic War, and 6 books of Virgil's Aeneid.

opportunity will be offered to make up the deficiency after admission.

Preparation in Free-Hand Drawing is recommended for all students.

The attention of Committees and Principals of Schools preparing students for the College, is called to the course of study in the Swarthmore Preparatory School, which is deemed a suitable preparation.

*For Advanced Standing.*—Candidates will be further examined in the studies already pursued by the class for which they present themselves; but in the case of such students, real equivalents will be accepted for any of the studies gone over by the class.

#### ADMISSION WITHOUT EXAMINATION.

I. Those candidates for the Freshman Class prepared in the following schools, will not be examined; but will be admitted on certificates signed by the Principals of the schools.

Friends' Central School,	Philadelphia, Pa.
Friends' Seminary,	New York, N. Y.
Friends' High School,	Baltimore, Md.
Woodstown Academy,	Woodstown, N. J.
Friends' School,	Wilmington, Del.
Friends' High School,	West Chester, Pa.
Friends' High School,	Moorestown, N. J.
Buckingham Friends' School,	Lahaska, Pa.
Friends' Academy,	Locust Valley, L. I.*

Pupils from these schools intending to enter the College, should apply by letter for places, as soon as convenient after the completion of their preparation. They should present themselves at the College on the afternoon of Fifth-day, Ninth Mo. 16th, 1886.

Principals of other schools who wish to have students admitted on their recommendation, should correspond with the President concerning each case.

II. A limited number of teachers and other persons of fair education and over 21 years of age, who may wish to improve themselves in particular studies, will be received without examination, and allowed to elect, in any of the regular classes, such work as they can pursue to advantage. They should in all cases, correspond with the President in advance.

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\* Other Friends' Schools may on application be added to the above list, if the Faculty and Instruction Committee shall be satisfied that they are taught by competent teachers, and are furnishing the requisite preparation for admission. This arrangement will hold good in each case so long as the results continue satisfactory.

# COURSES OF INSTRUCTION.

## I.—MATHEMATICS.

1. Olney's Algebra through Quadratic Equations, Davies's Legendre's Geometry, Review, and Book VI. Chauvenet's Plane Trigonometry. Four times a week. *Required of all students in the Freshman Class.*

2. Davies's Legendre's Geometry, Books VII-IX. Olney's Higher Algebra. Twice a week. *Required of all students in the Sophomore Class.*

3. Todhunter's Conic Sections. Twice a week. *Required of Engineering students in the Sophomore Class, and elective for others in that class.*

4. Williamson's Differential and Integral Calculus. Chauvenet's Spherical Trigonometry. Four times a week. *Required of Engineering students in the Junior Class, and elective for others in that class who have completed Course 3.*

5. Chauvenet's Spherical and Practical Astronomy. *Elective for students in the Senior Class who have completed Course 4.*

## II.—LATIN.

The following courses are offered in Latin, all of which the student must complete to obtain the degree of A. B. They are elective for students not candidates for that degree. In all the courses there are four recitations per week:

Class.	Reading.	Composition.	Supplementary Study.	Voluntary Work.
1. Freshman	<i>Virgil</i> , 2 Books. <i>Cicero</i> , 6 Orations. At sight: <i>Ovid</i> .	Harkness, Latin Composition, finished. Abbott, Latin Prose through English Idiom.	Lectures on the elements of comparative philology with especial reference to the syntax and vocabulary of Latin.	
2. Sophomore.	<i>Cicero</i> , First Philippic. <i>Sallust</i> , Catiline. <i>Livy</i> , Books 1. and XXI. At sight: <i>Sallust</i> , Jugurtha	Abbott, Latin Prose, etc., Sight Translation into Latin.	Lectures on Roman religion and Roman mythology.	Seminary for the study of the late republic and its literature, and of subjects in mythology.
3. Junior.	<i>Horace</i> , Odes & Epodes. <i>Cicero</i> , De Senectute. <i>Cicero</i> , De Amicitia. At Sight: <i>Cicero</i> , De Oratore.	Sight Translation into Latin.	History of Latin Literature. (Cruickwell; and lectures.	Seminary for the study of <i>Horace</i> : his life, surroundings, friends, character, belief.
4. Senior.	<i>Horace</i> , Satires. <i>Plautus</i> , or <i>Terence</i> , one comedy. <i>Tacitus</i> , Agricola. <i>Cicero</i> , Tusculan Disputations. <i>Lucretius</i> , Select'ns. At Sight: <i>Cicero</i> , De Officiis.	Extemporaneous Essays in Latin.	History of Roman Art, with an account of its remains. (Lectures and supplementary reading	Seminary for the study of Roman philosophy and of Roman art.

Lectures will be given on each author read, and with them translation from such of his works as are not studied by the class. In connection with book I. of Livy there will also be lectures on the credibility of early Roman history; and in connection with the study of Plautus (or Terence), lectures on the Roman drama, with translations from many plays.

The lectures on mythology and those on art will be illustrated.

### III.—GREEK.

Each year opportunity is offered for beginners in Greek, and students who have previously studied it go on in advanced classes. The courses are all elective. They extend over four years, with four recitations per week, and are as follows:

FIRST YEAR.—Goodwin's Grammar; Xenophon's Anabasis.

SECOND YEAR.—Fernald's Greek Historians; Homer's Iliad or Odyssey; Greek Prose Compositions; Goodwin's Greek Moods and Tenses.

THIRD YEAR.—Plato's Phædo or Apology of Socrates; The Hecuba or Medea of Euripides; Greek Composition.

FOURTH YEAR.—The Antigone of Sophocles or the Prometheus of Æschylus; Demosthenes on the Crown; Lysias or Isocrates; History of Greek Literature (Lectures).

### IV.—GERMAN.

1. Beginning German. The Grammar, with constant practice in writing exercises; reading German ballads and easy prose; conversational exercises. Four times a week *For those who have not previously studied German.*

2. Stories—Aus dem Leben eines Taugenichts; German plays—Eigensinn, Einer muss heirathen, etc.; exercise in writing German; conversation. Four times a week. *For those who have completed Course 1 or an equivalent.*

3. Schiller's Wilhelm Tell, Maria Stewart, etc.; dictation; writing; conversation. Twice a week. *For those who have completed Courses 1 and 2 or an equivalent amount.*

4. Goethe or Lessing; Schiller's Prose; studies in the history of German Literature; conversation and writing. Twice a week. *For those who have completed Courses 1, 2 and 3 or an equivalent amount.*



**V.—FRENCH.**

1. Beginning French. Magill's Grammar and Reader; Writing French Exercises. Four times a week. *For those who have not previously studied French.*

2. Fénelon's *Télémaque*; Magill's Grammar. Four times a week. *For those who have completed Course 1, or an equivalent.*

3. Magill's Prose and Poetry; Magill's Grammar. Four times a week. *Elective for students who have completed Courses 1 and 2, or an equivalent amount.*

4. Bôcher's College Series of Plays; Dumas's Napoleon, etc.; Magill's Grammar. Twice a week. *For students who have completed Courses, 1, 2 and 3, or an equivalent amount.*

5. Corneille's *Cid*; Racine's *Athalie*; Molière's *Misanthrope*, etc.; Familiar Lectures in French on French Literature; Magill's Grammar. Twice a week. *For students who have completed Courses 1, 2 and 3, or an equivalent amount.*

**VI.—ITALIAN AND SPANISH.**

1. ITALIAN.—The Grammar with written Exercises; *I Promessi Sposi*, *Nicolo dei Lapi*. Four times a week.

2. SPANISH.—Knapp's Spanish Grammar and Spanish Readings. *Don Quijote*, etc. Four times a week.

*These Courses are Elective for those who have completed Courses 1 and 2 in Latin, or Courses 1 and 2 in French.*

**VII.—ENGLISH.**

The instruction in this department consists of Lectures, Readings, and Recitations as follows:

1. Rhetoric and Composition, one exercise per week, with constant practice in writing essays. *Required of all students throughout the entire four years.*

2. A course of critical reading in authors of the nineteenth century, twice a week. This course extends over two years. *Required of Freshman and Sophomore students in Letters, and elective for other students in those classes.*

3. A course of critical reading in authors prior to the nineteenth century, from Chaucer down, four times a week, and extending through two years. *Required of Junior and Senior students in Letters, and elective for other students in these classes.*

4. A course of forty lectures on English Literature, extending over two years. *Required of students in the Freshman and Sophomore Classes, who elect English, and optional for others.*

### VIII.—READING AND SPEAKING.

This course extends over four years. It consists of training in posture, respiration, articulation, enunciation, and especially in logical analysis. Care is taken that the student shall learn to comprehend and appreciate the thought, and to give it natural and effective expression. This requires a careful study of the authors chosen, so that the course becomes to some extent one in English literature. Only pieces of acknowledged excellence are assigned, and at the end of the course the student will have studied critically and become familiar with a considerable number of them.

In the Freshman and Sophomore classes shorter selections are made from a number of authors; in the Junior and Senior classes attention is concentrated on a few of the great masterpieces of our literature, which are studied entire. Two periods per week counting as one. *Required of all students.*

### IX.—PHONOGRAPHY.

A course of lessons in Phonography; Corresponding and Reporting style. Graham's works are used as text books. Twice a week. *Elective for students in all classes.*

### X.—PHILOSOPHY AND TEACHING.

1. MENTAL PHILOSOPHY.—Lectures once a week with occasional examinations. The subject is presented historically, with outlines of the different schools of Philosophy. *Required of all students in the Senior Class.*

2. SCIENCE OF TEACHING.—A course of lectures twice a week during a part of the year, with outside reading; counting as two periods during its continuance. *Elective for students in any of the classes.*

PRACTICE is obtained in connection with the theory, by using the class of teachers who are studying the art, as a *practice class*.

THE TEACHER'S DIPLOMA is conferred at graduation in addition to the regular Bachelor's Degree, upon those who have attended three annual courses upon this subject, and passed satisfactory examinations upon the same.



## XI.—HISTORY AND POLITICAL ECONOMY.

1. ROMAN HISTORY with special reference to the manners and customs of the Greeks and Romans, and to the development of Roman political institutions. Twice a week. *Required of Freshmen in Arts and in Letters, elective for others in that Class.*

2. MODERN HISTORY OF EUROPE, with particular attention to the History of England, France and Germany, and to the Period of the Reformation. Student's Histories, with considerable additional reading required. Twice a week. *Required of Sophomore students in Letters; elective for others in that class.*

3. ELEMENTS OF POLITICAL ECONOMY, with particular attention to the following subjects: U. S. Financial Legislation; National Banks and the Bank of England; Monometallism and Bimetallism; Methods of Taxation; Protection and Free Trade; Corporations in U. S., and State Control of same abroad; Civil Service in U. S., and in Great Britain; Labor Associations and Trades Unions; Socialism, etc. Principles of Political Economy, Carey and Mill, with additional reading. Twice a week. *Required of Junior students in Arts, in Letters and in Science; elective for Juniors in Engineering.*

4. CONSTITUTIONAL HISTORY OF THE UNITED STATES together with a comparative study of the English Constitution. Examination of the forms of Government on the European Continent, since 1789. Much outside reading of various authorities required. Twice a week. *Required of Senior students in Letters and in Science; elective for others in this class.*

## XII.—NATURAL HISTORY.

1. GENERAL BIOLOGY.—Lectures or recitations twice a week with four periods of laboratory work; the whole counting as four periods. This course is intended as an introduction to the study of the facts, methods and principles of Biology, and is preparatory to the other courses. *Elective for Scientific students in the Junior year, and for others in the Sophomore year.*

2. ZOOLOGY.—Lectures or recitations once a week on Systematic Zoology, with three periods of laboratory work in the examination or dissection of the various animal types; the whole counting as two periods. *Elective for those who have completed Course 1.*

3. PHYSIOLOGY AND HYGIENE.—A course of lectures upon these subjects is prescribed for the young men in the Freshman Class,

and a separate but similar course for the young women in that class. *Attendance required of all students in the class.*

4. BOTANY.—Lectures, recitations and laboratory work, counting as two periods. During the Fall and Winter months the time is occupied with Vegetal Anatomy, Histology, Physiology and general Morphology; the use of the Microscope, making sections, etc. During the Spring and Summer, all the exercises are held in the Laboratory, and are accompanied by the dissection and analysis of illustrative plants. Each student prepares and names a collection of plants of the vicinity. *Required of Freshmen students in Science and Engineering, and elective for others in that Class.*

5. BOTANY.—Class exercises and laboratory-work in Cryptogamic Botany; counting as two periods. *Elective for those who have completed Course 4.*

6. MINERALOGY.—Lectures and recitations once a week in Crystallography and descriptive Mineralogy, with two periods per week of practice in determining minerals by their physical properties, and by means of the blow-pipe; the whole counting as two periods. *Elective for students in the Senior Class who have completed Course 1 in Chemistry.*

7. GEOLOGY.—Lectures, once a week, throughout the year. *Required of all students in the Senior Class.*

**The Museum** of the College consists of an extensive cabinet of choice crystallized minerals, and characteristic rocks and ores, and a collection of preserved specimens of animals of all classes, together with magnified and colored drawings selected from the best authorities, fully illustrating the course of lectures on Zoology, Comparative Anatomy and Physiology.

Students pursuing any of the courses in Natural History should at the same time take Free-Hand Drawing, if they are not already qualified in that subject.

### XIII.—PHYSICS.

The instruction in Physics begins in the Sophomore Year, and extends over three years. The Courses are as follows:

1. Mechanics of Solids, Liquids and Gases; Sound; Electricity. Twice a week. *Required of Sophomore students in Science and in Engineering, and elective for others in that Class.*

2. Additional work in the above subjects, with Laboratory Exercises; counting as two periods. *Required of Engineering students in the Sophomore Class, and elective for others taking Course 1.*

3. Electricity continued; Heat; Light. Twice a week. *Required of Junior students in Science and in Engineering, and elective for others who have taken Course 1.*

4. Laboratory work and Recitations, supplementary to Course 3, and upon the same subjects. Counting as two periods. *Elective for those taking Course 3.*

5. Reading, Recitations and Laboratory work upon Heat and Electricity; counting as two periods per week. *Elective for those who have completed the other Courses.*

#### XIV.—CHEMISTRY.

1. LECTURES on Chemistry, with frequent oral and written examinations. Three times a week, counting as two periods. *Required of Sophomore students in Science and in Engineering, and elective for Junior students in Arts and in Letters.*

2. LABORATORY EXERCISES in general Chemistry, with occasional Examinations and Recitations; four periods, counting as two. This Course is supplementary to Course 1, and includes a repetition of the most instructive experiments which the student has previously seen performed in the lecture-room. Some quantitative experiments are made in the study of chemical theory. *Elective for those who are taking Course 1, or who have completed it.*

3. LABORATORY EXERCISES.—Five periods per week, with two of Recitations and Examinations; the whole counting as four periods. This Course includes Analysis, (qualitative and quantitative methods); and the preparation and study of some typical Carbon compounds, using Remsen's Organic Chemistry as the text book. *Elective for those who have completed Course 2.*

4. ADVANCED COURSE.—Students who have completed the above courses, and wish to continue their work, will have special subjects assigned them; six periods per week counting as two.

*The Laboratories* for this department are constructed and fitted up in the most improved manner. They include a Laboratory for general Chemistry and Qualitative Analysis, one for Quantitative Analysis, one for Assaying and Metallurgy, a balance-room, store-rooms, etc.

## XV.—ENGINEERING.

This department, in connection with those of Mathematics, Chemistry and Physics, is intended to give a good preparation to those students who are expecting to become either Civil or Mechanical Engineers. The studies and exercises are so arranged that the graduates will be prepared to become immediately useful in the office, works, or field, in subordinate positions, and, after a fair amount of such practice, to design and take charge of important works.

The college is well provided with the necessary field instruments, Transits, Levels, Plane-Table, etc., and each student is made familiar with their use and management, by practical work in the field and draughting room, carefully planned to illustrate the actual practice of the engineer.

*The Draughting Room* is large, well-lighted, warmed, and ventilated, and is furnished with adjustable tables, models, drawings, etc.

*The Workshops*, collectively, constitute a *Mechanical Laboratory* in which the students become familiar with the nature and properties of the materials of construction, (iron, wood, brass, etc.) employed by the engineer, and with the processes of working them into the desired forms for their intended uses. They consist of

*The Machine Shop*, containing an Olsen's testing machine, arranged for tensile, compressive and transverse tests, and an excellent and complete assortment of tools, including screw-cutting engine lathes, speed-lathes, (simple and back-geared), an iron planer, a complete universal milling machine, a set of milling cutters adapted for general purposes and for making other cutters, a shaper, a twist drill grinder, upright drills, an emery grinder, a mill grinder, a grindstone, 14 vises (plain and swivel), 12 lathe chucks (combination, independent, scroll and drill), a milling machine chuck, a planer chuck (rotary), planer centers, a set of Betts' standard gauges, surface plates (Brown & Sharpe), 3 sets of twist drills, reamers, mandrels, screw plates, taps and dies, lathe center grinder, a complete set of steam-fitters' tools with pipe vise, ratchet drill, etc., together with the many necessary small tools, hammers, chisels, files, etc. Additions are constantly being made to this collection, as they are needed, either by manufacture in the shops, or by purchase. Power is furnished by a four-horse power engine and boiler, the former fitted with an improved indicator, and the latter with the necessary attachments for determining its efficiency, etc.

**The Wood-Working Shop**, containing 13 benches with vises, and 13 sets of wood-working tools, a grindstone and wood turning lathes.

**The Smith Shop**, containing two forges, anvils, and sets of blacksmith tools, bench and vise; and

**The Foundry**, with its brass furnace and other equipments.

Regular and systematic instruction is given in the use of tools, machinery and processes. Patterns are made by the students from their own designs and drawings, of machines, or parts of machines, and the castings are made and properly fitted together and finished according to the drawings.

The details of the course vary somewhat from year to year, but, in general, are represented by the following arrangement of the studies:

1. **FRESHMAN YEAR**.—The Elements of Draughting, including the use of instruments, India ink and colors, followed by Elementary Projections, Elements of Structures, Shades and Shadows, and Isometrical Drawings, with recitations, and the construction in wood and metal of models of the more difficult drawings. Instruction in the use and care of tools begun with vise work in the machine shop, and with simple constructions in wood.

2. **SOPHOMORE YEAR**.—Analytical Mechanics of Solids and Fluids. Descriptive Geometry, including Shades, Shadows, and Perspective, and the careful construction of the more important problems, followed in the Spring by Land Surveying, with Field Practice and Map Drawing. Instruction in the use of tools is continued and extended to include the principal machine tools.

3. **JUNIOR YEAR**.—*Before entering upon the work of this year the student must have completed Course 3 in Mathematics.*

**GEODESY**.—Theory, Adjustment and use of Engineering Field Instruments; Farm Surveying; Leveling; Topographical, Triangular and Hydrographical Surveying.

**APPLIED MECHANICS**.—Friction and other Resistances; Stress and Strength of Materials.

**DRAWING AND MECHANISM**.—Topographical, Structure and Machine Drawing; Principles of Mechanism; Visits to and Sketches of Special Machinery and Structures.

**PRACTICAL EXERCISES** in the Field, in the Fall and Spring months; in pattern making and casting in brass; and in general machine shop practice, including the forging, shaping, tempering,



use and care of tools, the filing, turning, planing, boring, etc. of metals, the finishing and fitting up of machines or parts of machines, the setting up, testing, and management of steam engines, boilers and machinery throughout the year; with occasional visits to mechanical establishments, and to important engineering works in or near Philadelphia.

4. SENIOR YEAR.—*Before entering upon the work of this year, the student must have completed Course 4 in Mathematics.*

ENGINEERING.—Theory and Practice of Road Surveying and Engineering; Building Materials; Stability of Structures; Foundations and Superstructures; Bridge Construction.

APPLIED MECHANICS.—Practical Hydraulics; Practical Pneumatics; General Theory of Machines; Theory of Prime Movers, Steam Engines, Turbines, etc.; Measurement of Power.

MECHANISM.—Principles of Mechanism, of Machine Design, of the Transmission of Power; Construction and Use of Tools.

DRAWING.—Stone-Cutting Problems; Topographical, Structure and Machine Drawing; Plans, Profiles and Sections of Road Surveys; Working Drawings.

PRACTICAL EXERCISES.—As in Junior Year, continued; Tests of Building Materials. Graduating Thesis.

In Drawing, Field Work and Shop Practice three periods are regarded as equivalent to one of Recitation.

## XVI.—DRAWING AND PAINTING.

A course of Free-Hand Drawing and Painting is elective for all. Aside from its intrinsic value as a means of culture, it is a very important adjunct to the other courses, especially to those in Science.

It consists of Object Drawing or Painting, from still life, flowers, etc. Four times a week, counting as two. Students who have acquired sufficient skill, may join a class for sketching from nature, one afternoon during the week in Spring and Autumn.

## XVII.—PHYSICAL CULTURE.

All students undergo an examination at the beginning of each year, and each individual is required to take such a course in Physical Culture as is prescribed by the Director. Subsequent examinations show the improvement made in each case. The Gymnasium is supplied with a complete set of the Sargent apparatus

# COURSES OF STUDY.

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## COURSE IN ARTS.

Leading to the Degree of Bachelor of Arts.

### FRESHMAN YEAR.

PREScribed.—Latin, 4; Greek, or Modern Language, 4; Roman History, 2; Mathematics, 4; Rhetoric and Elocution, 2; Physiology and Hygiene, 10 Lectures; Electives, 4. *Total, 20 Periods.*

ELECTIVE.—French, 4; German, 4; Engineering, 4; English, 2; Botany, 2; Drawing and Painting, 2; Phonography, 2.

### SOPHOMORE YEAR.

PREScribed.—Latin, 4; Greek, or Modern Language, 4; Mathematics, 2; Rhetoric and Elocution, 2; Electives, 8. *Total, 20 Periods.*

ELECTIVE.—French, 4; German, 4; Biology, 4; Mechanics and Physics, 2 or 4; Mathematics, 2; English, 2; History, 2; Botany, 2; Drawing and Painting, 2.

### JUNIOR YEAR.

PREScribed.—Latin, 4; Greek or Modern Language, 4; Political Economy, 2; Rhetoric and Elocution, 2; Electives, 8. *Total, 20 Periods.*

ELECTIVE.—Mathematics, 4; Chemistry, 4 or 2; Physics, 4 or 2; Natural History, 4 or 2; English, 4; French, 2; German, 2; Italian or Spanish, 4; Drawing and Painting, 2.

### SENIOR YEAR.

PREScribed.—Latin, 4; Greek or Modern Language, 4; Philosophy, 1; Geology, 1; Rhetoric and Elocution, 2; Electives, 8. *Total, 20 Periods.*

ELECTIVE.—Astronomy, 4; Chemistry, 4; English, 4; Spanish or Italian, 4; French, 2; German, 2; History, 2; Physics, 2; Natural History, 2; Drawing and Painting, 2.

*The Course in Physical Culture is required of all students.*

*Students in Arts are required to include among their electives one Course in Physics, Chemistry or Biology.*

*The recitation periods are each 45 minutes.*



## COURSE IN LETTERS.

Leading to the Degree of Bachelor of Letters.

## FRESHMAN YEAR.

PREScribed.—French, 4; German, 4; Mathematics, 4; English, 2; History, 2; Rhetoric and Elocution, 2; Physiology and Hygiene, 10 Lectures Electives, 2. *Total, 20 Periods.*

ELECTIVE.—Botany, 2; Drawing and Painting, 2; Phonography, 2.

## SOPHOMORE YEAR.

PREScribed.—French, 4; German, 4; English, 2; History, 2; Mathematics 2; Rhetoric and Elocution, 2; Electives, 4. *Total, 20 Periods.*

ELECTIVE.—Mathematics, 2; Mechanics and Physics 2 or 4; Biology 4 Drawing and Painting, 2; Botany, 2.

## JUNIOR YEAR.

PREScribed.—English, 4; Political Economy, 2; French, 2; German, 2 Rhetoric and Elocution, 2; Electives, 8. *Total, 20 Periods.*

ELECTIVE.—Mathematics, 4; Italian or Spanish, 4; Physics, 4 or 2; Chemistry, 4 or 2; Natural History, 2 or 4; Drawing and Painting, 2.

## SENIOR YEAR.

PREScribed.—English, 4; History, 2; French, 2; German, 2; Philosophy 1; Geology, 1; Rhetoric and Elocution, 2; Electives, 6. *Total, 20 Periods.*

ELECTIVE.—Astronomy, 4; Chemistry, 4 or 2; Physics, 2; Natural History 2 or 4; Spanish or Italian, 4; Drawing and Painting, 2.

*Students in this Course must include among their electives one Course in Biology, Chemistry or Physics.*

*The Course in Physical Culture is required in addition to the above Courses.*

*The periods of recitation are each 45 minutes.*

## COURSE IN SCIENCE.

Leading to the Degree of Bachelor of Science.

## FRESHMAN YEAR.

PREScribed.—Mathematics, 4; French or German, 4; Botany, 2; Rhetoric, and Elocution, 2; Electives, 8. *Total, 20 Periods.*

ELECTIVE.—Engineering, 4; German or French, 4; Latin, 4; English, 2; History, 2; Drawing and Painting, 2; Phonography, 2.

## SOPHOMORE YEAR.

PREScribed.—French or German, 4; Mathematics, 2; Mechanics and Physics, 2; Chemistry, 2; Rhetoric and Elocution, 2; Electives, 8. *Total, 20 Periods.*

ELECTIVE.—Mathematics, 2; Mechanics and Physics, 2; Chemistry, 2; Cryptogamic Botany, 2; History, 2; English, 2; Drawing and Painting, 2; German or French, 4; Latin, 4.

## JUNIOR YEAR.

PREScribed.—Modern Language, 4; Physics, 2; Political Economy, 2; Rhetoric and Elocution, 2; Electives, 10. *Total, 20 Periods.*

ELECTIVE.—Mathematics, 4; Chemistry, 2 or 4; Biology, 4; English, 4; French, 2 or 4; German, 2 or 4; Italian or Spanish, 4; Physics, 2; Botany, 2; Drawing and Painting, 2.

## SENIOR YEAR.

PREScribed.—Philosophy, 1; Geology, 1; Rhetoric and Elocution, 2; Modern Language, 2; History, 2; Electives, 12. *Total, 20 Periods.*

ELECTIVE.—Astronomy, 4; Chemistry, 2 or 4; Natural History, 2 or 4; Physics, 2; French, 2 or 4; German, 2 or 4; Spanish or Italian, 4; English, 4; Latin, 4; Drawing and Painting, 2.

*In addition to the above Courses all students in Science are required to take the Course in Physical Culture, and to attend Lectures on Physiology and Hygiene during a part of the Freshman Year.*

*If the student has had no preparation in Free-Hand Drawing before admission, he should include that subject among his electives for one year.*

*The recitation periods are each 45 minutes.*

## COURSE IN ENGINEERING.

Leading to the Degree of Bachelor of Science.

## FRESHMAN YEAR.

PREScribed.—Engineering, 4; Mathematics, 4; Botany, 2; Rhetoric and Elocution, 2; Electives, 8. *Total, 20 Periods.*

ELECTIVE.—French, 4; German, 4; English, 2; History, 2; Free-Hand Drawing, 2; Phonography, 2.

## SOPHOMORE YEAR.

PREScribed.—Engineering, 4; Mathematics, 4; Mechanics and Physics, 4; Chemistry, 2; Rhetoric and Elocution, 2; Electives, 4. *Total, 20 Periods.*

ELECTIVE.—Biology, 4; French, 4; German, 4; Chemistry, 2; Cryptogamic Botany, 2; History, 2; English, 2; Free-Hand Drawing, 2.

## JUNIOR YEAR.

PREScribed.—Engineering, 6; Engineering Practice, 4; Mathematics, 4; Physics, 2; Rhetoric and Elocution, 2; Electives, 2. *Total 20 Periods.*

ELECTIVE.—Physics, 2; Chemistry, 2; Zoology, 2; Botany, 2; French, 2; German, 2.

## SENIOR YEAR.

PREScribed.—Engineering, 8; Engineering Practice, 4; Philosophy, 1; Geology, 1; Rhetoric and Elocution, 2; Electives, 4. *Total, 20 Periods.*

ELECTIVE.—Astronomy, 4; Chemistry, 4; Mineralogy, 2; Botany, 2; History, 2; English, 4; French, 2 or 4; German, 2 or 4; Spanish, 4; Free-Hand Drawing, 2; Zoology, 2.

*In addition to the above Courses all students in Engineering are required to take the Course in Physical Culture, and to attend Lectures on Physiology and Hygiene during a part of the Freshman Year.*

*If the student has had no preparation in Free-Hand Drawing before admission, he should include that subject among his electives during the Freshman Year.*

*The recitation periods are each 45 minutes. In Engineering Practice three periods count as one.*

## GRADUATION AND DEGREES.

It will be seen that all the above courses of study require four years for their completion.

As a condition of graduation, each student must submit to the Faculty a satisfactory oration or essay, which he must be prepared to deliver in public if required to do so.

### 1. THE DEGREE OF BACHELOR.

The degrees of Bachelor of Arts, of Letters, and of Science, are conferred on the completion of the corresponding courses.

### 2. THE DEGREE OF MASTER.

Candidates for the Master's Degree are required to pursue a course of study at Swarthmore, or elsewhere, under the direction of the Faculty, and to pass examinations in the same.

Upon application to the Faculty, the course will be assigned, and students may present themselves from time to time for examination in such parts of it as they may have completed. Persons residing at the College, and devoting their whole time to the work, can accomplish a sufficient amount in one year; for non-resident candidates, who are at the same time engaged in other work, the course must occupy not less than two years.

The Degree of A. M. will be given to Bachelors of Arts who comply with the above conditions.

The Degree of M. S. will be given to Bachelors of Science, who comply with the above conditions.

The Degree of M. L. will be given to Bachelors of Letters who comply with the above conditions.

### 3. THE DEGREE OF CIVIL ENGINEER.

The Degree of C. E. will be given to Bachelors of Science of the Engineering Department who shall have been engaged for not less than three years, in professional practice, in positions of responsibility, and who shall present an acceptable thesis upon a subject pertaining to Civil Engineering.

Application for this Degree must be made, and the thesis presented at least *three months* before Commencement.

# STUDENTS.

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## SENIOR CLASS.

<u>Names.</u>	<u>Courses.</u>	<u>Residences.</u>
Emma S. Bones.....	LETTERS.....	<i>New Brighton, N. Y.</i>
Arthur D. Cochran.....	ENGINEERING ..	<i>Westtown, Pa.</i>
George J. Freedley.....	ENGINEERING ...	<i>Richmond, Va.</i>
Helen G. Johnson.....	ARTS.....	<i>Muncy, Pa.</i>
Ella Merrick.. ..	ARTS.....	<i>Wrightstown, Pa.</i>
Edgar M. Smedley.....	ENGINEERING ...	<i>Media, Pa.</i>
Rowland J. Spencer.....	LETTERS .....	<i>Curwensville, Pa.</i>
Martha M. Watson.....	ARTS.....	<i>Trenton, N. J.</i>
C. Percy Willcox.....	SCIENCE.....	<i>Washington, D. C.</i>
		Seniors, 9.

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## JUNIOR CLASS.

<u>Names.</u>	<u>Courses.</u>	<u>Residences.</u>
Alice T. Battin.....	ARTS.....	<i>Albany, N. Y.</i>
Harriet J. Cox.....	LETTERS .....	<i>Malvern, Pa.</i>
Horace Darlington.....	ENGINEERING ...	<i>Darling, Pa.</i>
Frederic B. Dilworth....	ENGINEERING ...	<i>Centreville, Del.</i>
Henry B. Goodwin.....	ENGINEERING ...	<i>Bordentown, N. J.</i>
Anna M. Jenkins... ..	ARTS... ..	<i>West Chester, Pa.</i>
Thomas A. Jenkins.....	ARTS.....	<i>West Chester, Pa.</i>
Frederick K. Lane.....	ENGINEERING ...	<i>Lancaster, Pa.</i>
Linda B. Palmer.....	ARTS.....	<i>West Chester, Pa.</i>
Jessie Pyle.....	ARTS... ..	<i>London Grove, Pa.</i>
Horace Roberts.....	ARTS.....	<i>Fellowship, N. J.</i>
Elizabeth B. Smedley....	ARTS.....	<i>Willistown, Pa.</i>
Elizabeth B. Smith.....	ARTS.....	<i>Lincoln, Va.</i>
William G. Underwood...	ENGINEERING ...	<i>Elizabeth City, N. C.</i>
		Juniors, 14.

## SOPHOMORE CLASS.

<u>Names.</u>	<u>Courses.</u>	<u>Residences.</u>
M. Ella Althouse.....	LETTERS.....	Reading, Pa.
Alice M. Atkinson.....	ARTS.....	Holicong, Pa.
George H. Boyer.....	ENGINEERING...	Kendall Creek, Pa.
Joseph H. Branson.....	SCIENCE.....	Stephenson, Va.
William E. Branson.....	SCIENCE.....	Stephenson, Va.
Thomas Brown.....	ENGINEERING...	Lincoln, Va.
Frank Cawley.....	ENGINEERING...	Woodstown, N. J.
Elizabeth J. Clothier....	ARTS.....	Wynnewood, Pa.
Jessie L. Colson.....	SCIENCE.....	Daretown, N. J.
Sadie M. Conrow.....	ARTS.....	Cinnaminson, N. J.
Edith H. Cutler.....	SCIENCE.....	Unionville, Pa.
Joseph H. Dickinson....	ENGINEERING...	Lapps, Pa.
William L. Dudley.....	ENGINEERING...	Washington, D. C.
Robert P. Ervien.....	SCIENCE.....	Shoemakertown, Pa.
E. Lawrence Fell.....	SCIENCE.....	Holicong, Pa.
Joyeuse L. Fullerton....	ARTS.....	Wenonah, N. J.
Emma Gawthorp.....	LETTERS.....	Wilmington, Del.
Alice Hall.....	ARTS.....	West Chester, Pa.
P. Sharpless Hall.....	ENGINEERING...	Philadelphia, Pa.
Walter Hancock.....	ENGINEERING...	Philadelphia, Pa.
Anna H. Johnson.....	ARTS.....	Muncy, Pa.
Martha P. Jones.....	ARTS.....	Conshohocken, Pa.
T. Montgomery Lightfoot.	SCIENCE.....	Germantown, Pa.
Hetty C. Lippincott....	ARTS.....	Riverton, N. J.
Laura L. Lippincott....	ARTS.....	Moorestown, N. J.
Ellis P. Marshall, Jr.,...	SCIENCE.....	London Grove, Pa.
Maud P. Mills.....	ARTS.....	Buffalo, N. Y.
E. Gertude Moore.....	ARTS.....	Atlanta, Ga.
Aaron C. Pancoast.....	SCIENCE.....	San Antonio, Texas.
Joseph J. Rhoads.....	ENGINEERING...	Bellefonte, Pa.
Wallace S. Risley.....	SCIENCE.....	Camden, N. J.
William H. Seaman.....	ENGINEERING...	Jericho, N. Y.
James L. Seligman.....	SCIENCE.....	Santa Fe, N. M.
Amelia Skillin.....	ARTS.....	Glen Head, N. Y.
Harvey T. Smith.....	SCIENCE.....	Lincoln, Va.
Mary H. Smith,.....	ARTS.....	Unionville, Pa.
Carroll H. Sudler.....	ARTS.....	Sudlersville, Md.



Helena W. Tyler.....	LETTERS.....	<i>Camden, N. J.</i>
Charlotte M. Way.....	LETTERS.....	<i>Atlantic City, N. J.</i>
Annie E. Willits.....	ARTS.....	<i>Syasset, N. Y.</i>
Esther M. Willits.....	LETTERS.....	<i>Old Westbury, N. Y.</i>
Frank V. Wilson.....	ARTS.....	<i>Purcellville, Va.</i>

Sophomores, 42.

### FRESHMAN CLASS.

<u>Names.</u>	<u>Courses.</u>	<u>Residences.</u>
Justin K. Anderson.....	SCIENCE.....	<i>Sheffield, Pa.</i>
Edward Bancroft.....	ARTS.....	<i>Philadelphia, Pa.</i>
Morris L. Clothier.....	SCIENCE.....	<i>Wynnewood, Pa.</i>
Alexander G. Cummins, Jr.	ARTS.....	<i>Smyrna, Del.</i>
Howard A. Dill.....	SCIENCE.....	<i>Richmond, Ind.</i>
Horace B. Forman, Jr....	SCIENCE.....	<i>New York, N. Y.</i>
William E. Griffin. ....	SCIENCE.....	<i>Santa Fe, N. M.</i>
Ellis M. Harvey.....	SCIENCE.....	<i>Ward, Pa.</i>
Mary M. Hawley.....	ARTS.....	<i>Media, Pa.</i>
Clara Haydock.....	LETTERS.....	<i>New York, N. Y.</i>
Julia Hicks.....	LETTERS.....	<i>Old Westbury, N. Y.</i>
Anna Holcomb.....	ARTS.....	<i>Newtown, Pa.</i>
Elizabeth D. Holmes....	ARTS.....	<i>Salem, N. J.</i>
George M. Hughes.....	SCIENCE.....	<i>Baltimore, Md.</i>
Charles B. Jessup.....	SCIENCE.....	<i>Cinnaminson, N. J.</i>
Ellwood C. Jones.....	SCIENCE.. . .	<i>Conshohocken, Pa.</i>
Mary Kirk.....	ARTS.....	<i>Lumber City, Pa.</i>
Margaret J. Laurie.....	LETTERS.....	<i>Jericho, N. Y.</i>
Henry R. Lewis.....	SCIENCE.....	<i>Philadelphia, Pa.</i>
Anna T. Lippincott.....	LETTERS.....	<i>Unionville, Pa.</i>
George A. Masters.....	SCIENCE.....	<i>Philadelphia, Pa.</i>
Elizabeth B. Parker.....	LETTERS.... .	<i>West Chester, Pa.</i>
Lonella Passmore.....	SCIENCE.....	<i>Oxford, Pa.</i>
Frederic B. Pyle.....	SCIENCE.....	<i>London Grove, Pa.</i>
Jas. Charles Read.....	SCIENCE.....	<i>Pittsburgh, Pa.</i>
Ralph Stone.....	SCIENCE.....	<i>Wilmington, Del.</i>



Elsie D. Stoner.....	SCIENCE.....	<i>Columbia, Pa.</i>
Kate C. Thomas.....	LETTERS.....	<i>Old Westbury, N. Y.</i>
James V. Upson.....	SCIENCE.....	<i>San Antonio, Texas.</i>
Willis W. Vail.....	SCIENCE.....	<i>Quakertown, N. J.</i>
J. Riley Vansant.....	SCIENCE.....	<i>Fawn Grove, Pa.</i>
Jennie F. Waddington...	SCIENCE.....	<i>Salem, N. J.</i>
George Watson.....	SCIENCE.....	<i>Doylestown, Pa.</i>
Rebecca S. Webb.....	ARTS.....	<i>Philadelphia, Pa.</i>
I. Daniel Webster.....	SCIENCE..	<i>Wakefield, Pa.</i>
Martha K. Wildman.....	LETTERS.....	<i>Philadelphia, Pa.</i>

Freshmen, 36.

### UNCLASSIFIED STUDENTS.

George T. Barnsley.....	<i>Huntingdon Valley, Pa.</i>
Walter A. Brown.....	<i>Washington, D. C.</i>
Lucy Chandlee.....	<i>Still Pond, Md.</i>
Laura L. Dixon.....	<i>Easton, Md.</i>
Ethelbert Ekins.....	<i>Los Angeles, Cal.</i>
Rowland J. Haines.....	<i>Norristown, Pa.</i>
Francis Hoag, Jr.....	<i>Quaker St., N. Y.</i>
Martha S. Lippincott.....	<i>Moorestown, N. J.</i>
Charles Longstreth.....	<i>Philadelphia, Pa.</i>
William S. Marshall.....	<i>Milwaukee, Wis.</i>
Morris B. Miller.....	<i>Wallingford, Pa.</i>
Elsie Palmer.....	<i>Baltimore, Md.</i>
William M. Perrine.....	<i>Philadelphia, Pa.</i>
Catherine M. Rider.....	<i>New York, N. Y.</i>
Marian Sharpless.....	<i>Darling, Pa.</i>
Fanny C. Shroyer.....	<i>Logansport, Ind.</i>
Rebecca E. Simmons.....	<i>Woodbury, N. J.</i>
Elizabeth A. Smedley.....	<i>Media, Pa.</i>
Charlotte L. Strattan.....	<i>Altoona, Pa.</i>
Anna Travilla.....	<i>West Chester, Pa.</i>
Emma E. Thomas.....	<i>Cheyney, Pa.</i>
Anna J. Williamson.....	<i>West Chester, Pa.</i>

Unclassified, 22.

## SUMMARY.

Seniors .....	9
Juniors .....	14
Sophomores .....	42
Freshmen .....	36
Unclassified .....	22
Total...	<u>123</u>

## SUMMARY BY STATES.

Pennsylvania .....	62
New York .....	14
New Jersey .....	18
Maryland .....	5
Virginia .....	7
Delaware .....	4
District of Columbia .....	3
Indiana .....	2
New Mexico .....	2
Texas .....	2
North Carolina .....	1
Georgia .....	1
California .....	1
Wisconsin .....	1
Total...	<u>123</u>

# OFFICERS OF THE ALUMNI ASSOCIATION.

INCORPORATED 1882.

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## PRESIDENT.

Joseph Fitch.....237 Broadway, New York, N. Y.

## VICE-PRESIDENTS.

Gerrit E. H. Weaver.....Swarthmore, Pa.

Thos. L. Moore.....Sandy Spring, Md.

Alvin T. Shoemaker.....11 Pine St., New York, N. Y.

## SECRETARY.

Bertha Cooper.....419 N. Fifth St., Camden, N. J.

## TREASURER.

William J. Hall.....Swarthmore, Pa.

## RECORDER.

Herman Hoopes.....609 Chestnut St., Philadelphia, Pa.

## BOARD OF DIRECTORS.

The President.

The Secretary.

The Treasurer.

Helen T. Comly.....15th and Race Sts., Philadelphia, Pa.

Herman Hoopes.....609 Chestnut St., Philadelphia, Pa.

Frank L. Bassett.....34 North 19th St., Philadelphia, Pa.

Fannie A. Willets.....227 Greenwood Ave., Trenton, N. J.

Jos. T. Bunting.....323 Walnut Street, Philadelphia, Pa.

Emily E. Wilson.....Swarthmore, Pa.

# GRADUATES.

## CLASS OF 1873.

Sarah H. Acton, A. B.....	<i>Salem, N. Y.</i>
Helen Magill, A. B. (Ph. D. Boston University, 1877).....	<i>West Bridgewater, Mass.</i>
Elizabeth C. Miller, A. B.....	<i>Swarthmore College, Pa.</i>
Esther T. Moore, A. B.....	<i>Swarthmore College, Pa.</i>
*Maria C. (Pierce) Green, A. B.....	1877.
Lowndes Taylor, A. B.....	<i>St. Paul, Minn.</i>

## CLASS OF 1874.

Ellen H. (Evans) Price, A. M., 1884.....	<i>Swarthmore, Pa.</i>
Amy W. (Hall) Hickman, A. B.....	<i>West Chester, Pa.</i>
*Alfred T. Haviland, B. S.....	1874.
Mary (Hibbard) Thatcher, A. B.....	<i>Henry Clay, P. O., Del.</i>
Herman Hoopes, C. E., 1879.....	<i>Philadelphia, Pa.</i>
Ferris W. Price, A. B.....	<i>Swarthmore College, Pa.</i>
Elizabeth S. (Woolston) Collins, A. B.....	<i>Philadelphia, Pa.</i>

## CLASS OF 1875.

John B. Booth, A. B.....	<i>ThurLOW, Pa.</i>
Helen T. Comly, A. B.....	<i>Philadelphia, Pa.</i>
Franklin H. Corlies, B. S.....	<i>Philadelphia, Pa.</i>
*Herbert G. Dow, A. B. (and Harvard 1877).....	1878.
Lizzie (Hanes) Taylor, A. B.....	<i>Woodstown, N. J.</i>
Edith R. (Hooper) Roberts, A. B.....	<i>Titusville, Pa.</i>
Barton Hoopes, Jr., B. S.....	<i>Philadelphia, Pa.</i>
*Oliver Keese, Jr., B. S.....	1879.
J. Reece Lewis, B. S.....	<i>Media, Pa.</i>
Howard W. Lippincott, A. B.....	<i>Philadelphia, Pa.</i>
Martha (McIlvain) Eastwick, A. B.....	<i>Philadelphia, Pa.</i>
John K. Richards, A. B., (and Harvard, 1877).....	<i>Ironton, Ohio.</i>
William H. Ridgway, C. E., 1879.....	<i>Coatesville, Pa.</i>

## CLASS OF 1876.

Frank L. Bassett, B. S., (D. D. S. Phila. Dental College, 1878) .....	<i>Philadelphia, Pa.</i>
Arthur W. Bradley, A. B.....	<i>Philadelphia, Pa.</i>
Frances Linton, A. M., 1881.....	<i>Philadelphia, Pa.</i>
Elizabeth L. (Longstreth) Boyd, A. B.....	<i>Philadelphia, Pa.</i>
James T. McClure, B. S.....	<i>Philadelphia, Pa.</i>
Emma McIlvain, A. B.....	<i>Philadelphia, Pa.</i>
Edw. Mitchell, Jr., A. B., (B. L. and B. S. R., Sorbonne, Paris, 1877).....	<i>New York, N. Y.</i>
Luey R. (Price) MacIntire, A. B. (1880).....	<i>Philadelphia, Pa.</i>
Isaac G. Smedley, B. S. (M. D. Hahnemann Med. Col., 1879).....	<i>Philadelphia, Pa.</i>
Herbert W. Smyth, A. B. (Harvard, 1878, Ph. D., Göttingen, 1884).....	<i>Johns Hopkins Univ., Balt., Md.</i>
Mary Willets, A. M., 1881, (M. D. Women's Med. Col., Phil., 1881).....	<i>Philadelphia, Pa.</i>
William P. Worth, B. S.....	<i>Coatesville, Pa.</i>

## CLASS OF 1877.

Joseph T. Bunting, B. S., (LL. B. Univ. of Pa. 1880).....	<i>Philadelphia, Pa.</i>
Norman B. Corson, A. B.....	<i>Norristown, Pa.</i>
Eudora Magill, A. B.....	<i>West Bridgewater, Mass.</i>
Jesse R. Norton, A. B.....	<i>Ironton, Ohio.</i>
Carroll R. Williams, A. M., 1882, (LL. B., Univ. of Pa., 1880).....	<i>Philadelphia, Pa.</i>
Florence M. Yeatman, A. B.....	<i>Norway, Pa.</i>

## CLASS OF 1878.

Caroline E. Barr, A. B.....	<i>West Bridgewater, Mass.</i>
Maybell P. Davis, A. B.....	<i>Newtonville, Mass.</i>
Howard Dawson, A. M., 1882.....	<i>Boston, Mass.</i>
Tacy A. Gleim, A. B.....	<i>Fort Collins, Col.</i>
William J. Hall, B. S.....	<i>Swarthmore College, Pa.</i>
Mary P. Hallowell, A. M., 1881, (M. D., Women's Med. Col. of Phila., 1881),	<i>Davis Grove, Pa.</i>
Charles A. Hawkins, A. B.....	<i>Fawn Grove, Pa.</i>
William Penn Holcomb, M. L., 1881.....	<i>Johns Hopkins Univ., Balt., Md.</i>
Rebecca S. Hunt, A. M., 1881, (M. D., Women's Med. Col. of Phila., 1881),	<i>Philadelphia, Pa.</i>
Anna E. (Jackson) Monaghan, B. L.....	<i>West Chester, Pa.</i>
Llewellyn H. Johnson, B. S.....	<i>Orange, N. Y.</i>
Edward Martin, A. M., 1882, (M. D., Univ. of Pa., 1883).....	<i>Philadelphia, Pa.</i>
Francis J. Palmer, B. S.....	<i>Brooklyn, N. Y.</i>
Israel Roberts, B. S.....	<i>Camden, N. Y.</i>
William Seaman, C. E., 1884.....	<i>Wilmington, Del.</i>
C. Harry Shoemaker, B. S.....	<i>Philadelphia, Pa.</i>

## CLASS OF 1879.

Isaac R. Coles, C. E., 1880.....	<i>Glen Cove, N. Y.</i>
William P. Fender, A. B.....	<i>Philadelphia, Pa.</i>
William Lea Ferris, A. B.....	<i>Wilmington, Del.</i>
Joseph Fitch, A. B.....	<i>New York, N. Y.</i>
Ruth Anna Forsyth, A. B.....	<i>Moorestown, N. Y.</i>
Elizabeth (Furnas) Bogardus, B. L.....	<i>New York, N. Y.</i>
P. Lesley Hopper, A. B.....	<i>Harre de Grace, Md.</i>
Marie A. Kemp, A. B.....	<i>Harrisburg, Pa.</i>
Elisha E. Lippincott, B. S.....	<i>Long Branch, N. Y.</i>
Samuel Craig McComb, C. E., 1882.....	<i>Tacony, Pa.</i>
Charles R. Miller, B. L., (LL. B., Univ. of Pa., 1881).....	<i>Wilmington, Del.</i>
Josephine (White) Breckens, A. B.....	<i>Cheyenne, Wyoming.</i>
Abigail M. (Woodnutt) Miller, B. L.....	<i>Wilmington, Del.</i>

## CLASS OF 1880.

Anne E. Constable, A. B.....	<i>Philadelphia, Pa.</i>
Arthur Colman Dawson, B. L., 1882.....	<i>Beloit, Wis.</i>
Florence Hall, A. B.....	<i>Philadelphia, Pa.</i>
Myra T. Hillman, A. B.....	<i>Washington, D. C.</i>
Emily L. (Hough) Savidge, A. B., (and Univ. of Minn., 1881).....	<i>Kearney, Neb.</i>
Edward H. Keiser, M. S., 1881, (Ph. D., John Hopkins Univ., 1884),	<i>Bryn Mawr College, Pa.</i>
Georgine (Kurtz) Muhlenberg, A. B.....	<i>Lake Valley, N. M.</i>
Albert R. Lawton, A. M., 1885.....	<i>Swarthmore College, Pa.</i>
Robert J. Marcher, B. S.....	<i>High Bridge, N. Y.</i>
Thomas L. Moore, A. B.....	<i>Sandy Spring, Md.</i>
Ellen S. (Preston) Griest, A. B.....	<i>Lancaster, Pa.</i>
John Turton, B. S.....	<i>New York, N. Y.</i>
Fannie A. Willets, A. B.....	<i>Trenton, N. Y.</i>
Henry S. Wood, C. E., 1883.....	<i>Philadelphia, P.</i>

## CLASS OF 1881.

Martha Bunting, B. L.....	Sharon Hill, Pa.
William Canby, Jr., B. L.....	Baltimore, Md.
Charles B. Doron, B. L.....	Elsah, Ill.
Mary J. Elliott, B. L.....	Philadelphia, Pa.
Emma Kirk, B. L.....	Bryn Mawr, Pa.
Gertrude B. Magill, A. B.....	West Bridgewater, Mass.
Eugene Paulin, Jr., A. B. (and Harvard 1883).....	Phila. Pa.
Martha E. Rhinoehl, A. B.....	Lebanon, Pa.
Edward C. Rushmore, B. S.....	New York, N. Y.
Henry B. Seaman, C. E., 1884.....	Brooklyn, N. Y.
Charles E. Sharpless, C. E., 1884.....	Media, Pa.
Alvin T. Shoemaker, B. L.....	New York, N. Y.
J. Byron Thomas, B. S.....	Cheyney, Pa.
Ernest F. Tucker, A. B. (M. D. Harvard, 1884).....	New York, N. Y.

## CLASS OF 1882.

William Llewellyn Baner, A. B.....	New York, N. Y.
Edith B. Blackwell, A. B.....	Dansville, N. Y.
Charlotte E. Brewster, B. L.....	Swiftwater, Pa.
William Butler Jr., A. B.....	West Chester, Pa.
C. Herbert Cochran, A. B.....	Philadelphia, Pa.
Bertha Cooper, B. L.....	Camden, N. J.
P. Fannie Foulke, A. B.....	Philadelphia, Pa.
Mary E. Gale, A. B.....	West Bridgewater, Mass.
Sarah S. (Green) Pierce, A. B.....	Pleasantville, N. Y.
Margaret E. Hallowell, A. B.....	Landsdowne, Pa.
Elizabeth E. Hart, B. L.....	Philadelphia, Pa.
Elizabeth Haslam, B. L.....	Parry, N. J.
Elizabeth M. Ogden, B. L.....	West Chester, Pa.
Charles Palmer, A. B.....	Moore's Mills, N. Y.
*George C. Phillips, B. S.....	1883
Horace L. Rossiter, A. B.....	Girardville, Pa.
Charles B. Turton, B. S.....	New York, N. Y.
Gerrit E. H. Weaver, A. B. (and Harvard 1884).....	Swarthmore College, Pa.
Emily E. Wilson, A. M. 1885.....	Swarthmore College, Pa.
Edgar M. Zavitz, A. B.....	Coldstream, Ont., Can

## CLASS OF 1883.

Charles A. Bunting, B. S.....	Sharon Hill, Pa.
John L. Cochran, B. S.....	Folly Mills, Va.
Edgar Conrow, B. L.....	Cinnaminson, N. J.
Lydia S. Green, A. B.....	Media, Pa.
Florence N. Hanes, A. B.....	Woodstown, N. J.
Alice W. Jackson, A. B.....	Germantown, Pa.
William A. Kissam, Jr., B. S.....	Little Neck, N. Y.
Bertha Matlock, B. L.....	Camden, N. J.
Guion Miller, A. B.....	Washington, D. C.
S. Duffield Mitchell, A. B.....	West Chester, Pa.
Edward A. Pennock, A. B.....	London Grove, Pa.
George L. Pennock, B. S.....	Darby, Pa.
Charles S. Pyle, B. S.....	West Grove, Pa.
Helen C. Pyle, B. L.....	Wilmington, Del.
Frederick A. Seaman, Jr., B. S.....	Madison, N. J.
Annie E. Tylor, B. L.....	Cinnaminson, N. J.
James E. Verree, B. L.....	Philadelphia, Pa.
Emma Webb, A. B.....	Philadelphia, Pa.



## CLASS OF 1884.

Horace L. Dilworth, B. S.....	<i>Centreville, Del.</i>
Rebecca M. Downing, B. L.....	<i>Philadelphia, Pa.</i>
John D. Furnas, B. S.....	<i>Waynesville, Ohio.</i>
Sarah L. Hall, A. B.....	<i>Locust Valley, N. Y.</i>
Henry J. Hancock, A. B.....	<i>Philadelphia, Pa.</i>
Edwin Haviland, Jr., B. S., 1885.....	<i>Plainfield, N. J.</i>
Mary E. Hughes, A. B.....	<i>Philadelphia, Pa.</i>
Laura H. Satterthwait, A. B.....	<i>Philadelphia, Pa.</i>
Frederic J. Taylor, B. S.....	<i>Minneapolis, Minn.</i>
Mary Willits, A. B.....	<i>Moore own, N. J.</i>

## CLASS OF 1885.

Minnie F. Baker, A. B.....	<i>Washington, D. C.</i>
Abigail Evans, A. B.....	<i>Baltimore, Md.</i>
Frederick P. Moore, A. B.....	<i>New York, N. Y.</i>
Mary D. Pratt, A. B.....	<i>West Chester, Pa.</i>

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Graduates and other former members of the College are requested to send their present addresses and occupations to the LIBRARIAN at the College, and to keep him informed of any changes in the same as they occur, that the list may be kept correct.

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\* Deceased.

# THE PREPARATORY SCHOOL.

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This school is intended to prepare students for the Freshman Class in the College, or to furnish a good practical education to those desiring a shorter course.

Most of the studies are required, as experience has clearly shown that young students make more satisfactory progress when pursuing a regularly required course, even for a single year, without any idea of graduation, than when they select their studies for themselves.

The course is laid down for all, and it is expected that parents will not ask to have it modified, except in the case of pupils whose health will not admit of their doing the full amount of work.

Members of the first and second classes who are over 18 years of age, may elect the theory and practice of teaching. Those who expect to teach the following year, may substitute for a part of the regular work, a thorough review of Arithmetic and the other elementary branches usually included in the examination of teachers for the public schools.

In arranging the course of study, we have had in view a complete and harmonious organization of all Friends' Schools throughout the country; and it is hoped that committees and teachers of these schools will unite with us in securing this very important end. In all Friends' Schools whose grade is so adjusted that certain classes, in the judgment of the Faculty, correspond with ours, students who complete the course of study in any class will be admitted to the class in this school, corresponding with the next higher in their own, without re-examination, on presenting certificates to that effect from the Principals of their respective schools.

## INSTRUCTORS.

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EUGENE PAULIN, A. M.,  
*Superintendent of Instruction and Discipline.\**

SAMUEL S. GREEN, M. S.,  
*Physics.*

SUSAN W. GILLAM,  
*Reading and Speaking.*

MINNIE S. BLAKIE,  
*Writing and Spelling.*

ALBERT R. LAWTON, A. M.,  
*German and French.*

EMILY E. WILSON, A. M.,  
*Mathematics.*

BEATRICE MAGILL,  
*Drawing and Painting.*

GERRIT E. H. WEAVER, A. B.,  
*History and Geography.*

FERRIS W. PRICE, A. B.,  
*Latin and English.*

ALBERT G. PALMER, Ph. D.  
*Chemistry.*

ESTHER T. MOORE, A. B.,  
*In charge of Study Room.*

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\*The Discipline of the girls is in charge of the Matron of the College.

## CONDITIONS OF ADMISSION.

*Application* for admission should be made in writing to THE PRESIDENT of the College, and should in all cases be accompanied by a testimonial of good character from the pupil's last teacher.

*Examinations* for admission and classification will be held on Third, Fourth, and Fifth days, the 14th, 15th and 16th of Ninth month, 1886. Candidates must present themselves at three o'clock P. M. on Third-day, the 14th of Ninth month, 1886.

The pupils of this school are divided into three classes, *First*, *Second* and *Third*. For admission to the third or lowest class, the pupil must be at least fourteen years of age, and must be prepared in the following subjects :

*Arithmetic*.—The Fundamental Rules ; Denominate Numbers ; Common and Decimal Fractions ; Percentage and Interest.

*English*.—The Parts of Speech ; Analysis, and Parsing of Simple Sentences ; The use of Capitals and Spelling.

*Geography*.—Descriptive and Political Geography of all countries, especially of North America.

*History*.—The History of the United States as found in the school Histories.

Pupils from the schools named on page 19, will not be examined, but will be classified as recommended by the Principals of those schools. A written statement in regard to scholarship from the pupil's last teacher will, in all cases, receive due consideration.

Pupils who are well prepared in Arithmetic will be received if they are deficient in some of the other subjects. They will receive special instruction until they are fitted to regularly enter the class. It is advised, however, that pupils before coming, be well prepared in all the subjects.

## EXPENSES.

The charges for board and tuition and other expenses, are found on page 15.

## COURSE OF STUDY.

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### THIRD CLASS.

**Arithmetic.**—Percentage and its applications; Partnership; Ratio and Proportion; Involution and Evolution; Progressions.

**Algebra.**—Addition, Subtraction, Multiplication and Division; Simple Equations; Fractions.

**English.**—Practice in Composition; Essential Principles of the Grammar; Analysis of Sentences; Selections from Whittier and Irving.

**Latin.**

a. *Grammar*: inflections; elementary syntax of cases; elementary syntax of moods.

b. *Reading*: the Latin reader; one book of Cæsar.

c. *Composition*: from the first, easy sentences; later, fifteen lessons of Harkness's "Latin Composition."

**History.**—History of the United States.

**Geography.**—Review of Descriptive and Political Geography;

**Reading.**—Practice in Reading and Declaiming before the class.

**Spelling.**—Selected Words; Dictation Exercises; Correction of misspelled words in all written exercises.

**Writing.**—The Spencerian System.

**Drawing.**—Free Hand Object Drawing and Perspective.

**Physical Culture.**—Exercises in the Gymnasium, as prescribed in each case by the Director.

### SECOND CLASS.

**Mathematics.**—Algebra to Quadratics; Geometry, Books I, II and III.

**English.**—Composition; Grammar; Selections from Longfellow and Hawthorne.

**Latin.**

a. *Grammar*: irregular verbs; exhaustive study of the cases; word formation.

b. *Reading*: Cæsar, three books; Virgil, two hundred lines; at sight, Nepos.

c. *Composition*: thirty-five lessons of Harkness's "Latin Composition."

d. *Supplementary Study*: Roman Antiquities, Wilkins's "Primer."

**French.**—Magill and Paulin's First Lessons in French; Magill's French Reader.

**History.**—History of England.

**Geography.**—Physical Geography.

**Chemistry.**—Lectures.

**Reading.**—Practice in Reading and Declaiming before the class.

**Spelling.**—Selected words; Dictations; Correction of misspelled words in all written exercises.

**Writing.**—The Spencerian System.

**Drawing.**—Free Hand Object Drawing and Perspective.

**Physical Culture.**—Exercises in the Gymnasium, as prescribed in each case by the Director.

### FIRST CLASS.

**Mathematics.**—Geometry through Book V.; Review of Arithmetic; Algebra through Quadratic Equations of one unknown quantity.

**English.**—Rhetoric and Composition; a brief outline of the History of English Literature; Selections from Bryant and Lowell.

**Latin.**

a. *Grammar*: exhaustive study of the moods; prosody.

b. *Reading*: Virgil, four books; at sight, Nepos and Cæsar's Civil War.

c. *Composition*: thirty-five lessons of Harkness's "Latin Composition."

d. *Supplementary Study*: Classical Geography, lectures.

**Or German.**—Grammar and Practice in Writing Exercises; Ballads and easy Prose.

**French.**—Magill's Grammar and Reader.

**History.**—History of the Ancient Oriental Monarchies and of Greece; Swinton's outlines, and Smith's Smaller Greece.

**Natural History.**—Lectures on Physiology and Hygiene.

**Physics.**—Lectures.

**Astronomy.**—Descriptive Astronomy, with practice in finding the constellations and the principal stars.

**Reading.**—Practice in Reading and Declaiming before the class.

**Spelling.**—Selected words and Dictation Exercises; Correction of misspelled words in all written exercises of the class.

**Writing.**—The Spencerian System.

**Drawing.**—Free Hand Object Drawing and Perspective.

**Physical Culture.**—Exercises in the Gymnasium, as prescribed for each individual by the Director.



## PERIODS OF RECITATIONS PER WEEK.

The following table shows the number of exercises per week for each class; the periods being forty-five minutes each.

STUDIES.	THIRD.	SECOND.	FIRST.
Mathematics .....	4	4	4
Latin .....	5	5	4
German .....			4
French .....		3	4
History .....	2	2	2
English .....	3	2	2
Reading and Speaking.	3	2	2
Spelling .....	2	1	1
Geography .....	2	1	
Physiology .....			1
Writing .....	2	2	1
Drawing .....	2	2	2
Chemistry .....		1	
Physics .....			1
Astronomy .....			1
	25	25	25*

## PERCENTAGE OF TIME OCCUPIED.

English..... 24 per cent.	French..... 8 per cent.
Latin..... 18.6 "	History..... 8 "
Mathematics... 16 "	Science..... 5.4 "
Writing & Drawing..... 16 "	Geography..... 4 "

\* Besides English, in the First Class there are offered three languages, Latin, German and French; of these the pupil must elect *two*.

# PUPILS IN PREPARATORY SCHOOL

## FIRST CLASS.

Mary Andrews.....	Norristown, Pa.
Elizabeth N. Askew.....	Altoona, Pa.
John B. Atkinson.....	Earlington, Ky.
William O. Bernard.....	New Orleans, La.
George Bones.....	New York, N. Y.
Rosamond L. Bowers.....	Morrisville, Pa.
Arabella Carter.....	Byberry, Pa.
William S. Eagle.....	Cecil, Ohio.
Eugene Griffin.....	Santa Fe, N. M.
Henry L. Hallock.....	Brooklyn, N. Y.
W. Everett Hunter.....	Winnetka, Ill.
Albert H. Johnson.....	Byberry, Pa.
Lillian Jones.....	Conshohocken, Pa.
Maria J. Kent.....	Lincoln University, Pa.
Henry La Motte.....	Plattsburgh, N. Y.
Alice Leedom.....	Torresdale, Pa.
Herbert Linderman.....	Quakertown, Pa.
Minnie B. Long.....	Tacony, Pa.
J. Morton McIlvaine.....	Churchville, Md.
Redding M. Milligan.....	Philadelphia, Pa.
R. Eva Mills.....	Mt. Palatine, Ill.
Mary E. Pancoast.....	Marple, Pa.
James W. Ponder.....	Milton, Del.
Ellis B. Ridgway.....	Coatesville, Pa.
Richard C. Sellers.....	Swarthmore, Pa.
Harriet A. Smith.....	Mullica Hill, N. J.
Mary F. Soper.....	Jersey City, N. J.
Seymour H. Stone.....	Wilmington, Del.
Anna W. Stout.....	Newportville, Pa.
William E. Sweet.....	Colorado Springs, Col.

Harry T. Thomas.....	<i>Baltimore, Md.</i>
Anna W. Titus.....	<i>Old Westbury, N. Y.</i>
Howard Turner.....	<i>Still Pond, Md.</i>
Hattie B. Weand.....	<i>Norristown, Pa.</i>
Mary H. White.....	<i>Philadelphia, Pa.</i>
Phebe P. Willis.....	<i>Old Westbury, N. Y.</i>
Vincent J. Youmans. ....	<i>Mt. Vernon, N. Y.</i>

First Class, 37.

## SECOND CLASS.

Henry Bancroft.....	<i>Philadelphia, Pa.</i>
Francis Blake.....	<i>Las Vegas, N. M.</i>
Henry Blake.....	<i>Las Vegas, N. M.</i>
Elizabeth P. Bonner.....	<i>Byberry, Pa.</i>
Lucy C. Brinton.....	<i>Christiana, Pa.</i>
Elizabeth Chadwick.....	<i>Quaker St., N. Y.</i>
William W. Chambers.....	<i>Philadelphia, Pa.</i>
Alice B. Comly.....	<i>Byberry, Pa.</i>
Clarence G. Corkran.....	<i>Lutherville, Md.</i>
William B. Derr.....	<i>Philadelphia, Pa.</i>
George Dilworth.....	<i>Billings, Montana.</i>
Loretta M. Eves.....	<i>Millville, Pa.</i>
Annie M. Franklin.....	<i>Sands Point, N. Y.</i>
Elva Gregg.....	<i>Philadelphia, Pa.</i>
Clarence Griffin.....	<i>Santa Fe, N. M.</i>
Glentworth B. Hart.....	<i>Sing Sing, N. Y.</i>
Jesse A. Hays.....	<i>New York, N. Y.</i>
Clifford S. Jacoby.....	<i>Philadelphia, Pa.</i>
Annie M. Kent .....	<i>Lincoln University, Pa.</i>
Lillie T. Larrabee .....	<i>Baltimore, Md.</i>
Dora Lewis.....	<i>Media, Pa.</i>
Lena M. Lewis.....	<i>Media, Pa.</i>
Lillie M. Lewis.....	<i>Swarthmore, Pa.</i>
Margaret S. Marshall.....	<i>Trenton, N. J.</i>
Florence C. Martin.....	<i>Downingtown, Pa.</i>
Jessie W. Masters.....	<i>Philadelphia, Pa.</i>
Howard W. Middleton, Jr.....	<i>Philadelphia, Pa.</i>
Robert Nicholas.....	<i>Omaha, Neb.</i>

James Noxon, Jr.....	<i>Ingersoll, Ontario, Can.</i>
Mary H. Pancoast....	<i>Germantown, Pa.</i>
Edwin S. Potter.....	<i>Riverton, N. J.</i>
Sarah M. Preston.....	<i>Darlington, Md.</i>
Ada P. Sager.....	<i>Lenape, Pa.</i>
Francis M. Sawyer.....	<i>Camden, N. J.</i>
Marcus W. Saxman.....	<i>Latrobe, Pa.</i>
Josephine W. Scott.....	<i>Philadelphia, Pa.</i>
Arthur Seligman.....	<i>Santa Fe, N. M.</i>
Minnie Seligman.....	<i>Santa Fe, N. M.</i>
Francis P. Sloan.....	<i>Oakdale, Pa.</i>
Matilda H. Slocom.....	<i>San Antonio, Tex.</i>
Frederic S. Stimson.....	<i>Muskegon, Mich.</i>
William R. Trimble.....	<i>Philadelphia, Pa.</i>
Evangeline Vail.....	<i>Quakertown, N. J.</i>
Anna B. Walker.....	<i>Emerson, Ohio.</i>
Hugh S. Walker.....	<i>Waterford, Va.</i>
William E. Whitson.....	<i>Westbury Station, N. Y.</i>
Abbie Wildman.....	<i>Langhorne, Pa.</i>
Richard M. Willis.....	<i>Galveston, Tex.</i>
M. Lilian Yarnall.....	<i>Ward, Pa.</i>

Second Class, 49.

### THIRD CLASS.

Bruce Axtell.....	<i>Santa Fe, N. M.</i>
Edward T. Betts, Jr.....	<i>Buffalo, N. Y.</i>
M. Jennie Chandler.....	<i>Philadelphia, Pa.</i>
Sarah C. DeHaven.....	<i>Westtown, Pa.</i>
Frank E. Dill.....	<i>Richmond, Ind.</i>
Louis Fawcett.....	<i>Salem, Ohio.</i>
Lydia Flagg.....	<i>Swarthmore, Pa.</i>
Francis S. Garrett.....	<i>Wilmington, Del.</i>
Etta M. Gilbreath.....	<i>Fort Buford, Da.</i>
Mary L. Green.....	<i>Beatrice, Neb.</i>
John H. Hubbs.....	<i>Doylestown, Pa.</i>
Henry J. Hunter.....	<i>New York, N. Y.</i>
Frank E. King.....	<i>Philadelphia, Pa.</i>
Marietta R. Kirk.....	<i>Glenolden, Pa.</i>

Mary P. Lardner.....	<i>Lansdale, Pa.</i>
Lulu Le Sage.....	<i>Muskegon, Mich.</i>
Sarah Le Sage.....	<i>Muskegon, Mich.</i>
Florence W. Matthews.....	<i>Philopolis, Md.</i>
Spencer Miller.....	<i>Oakdale, Pa.</i>
Irving Neuscheler.....	<i>New York, N. Y.</i>
Edward M. Philips.....	<i>Faulkland, Del.</i>
Mary R. Price.....	<i>Towson, Md.</i>
William R. Rauchenstein.....	<i>Philadelphia, Pa.</i>
Albert Saunders.....	<i>Huntingdon Valley, Pa.</i>
Alfred H. Saxton.....	<i>Amityville, N. Y.</i>
David J. Senseman.....	<i>Rowlesburg, W. Va.</i>
Marian W. Sloan.....	<i>Oakdale, Pa.</i>
Jay D. Stimson.....	<i>Muskegon, Mich.</i>
Thomas Turnbull, Jr.....	<i>Muskegon, Mich.</i>
Herman R. Tyson.....	<i>Village Green, Pa.</i>
James M. Walker, Jr.....	<i>Waterford, Va.</i>

Third Class, 31.

#### UNCLASSIFIED PUPILS.

Pastor Guerrero.....	<i>Managua, Nicaragua.</i>
Joaquin Martinez.....	<i>Managua, Nicaragua.</i>
Howard M. Phillips.....	<i>Philadelphia, Pa.</i>
Federico Solarzano.....	<i>Managua, Nicaragua.</i>

Unclassified 4.

## SUMMARY.

First Class.....	37
Second Class.....	49
Third Class.....	31
Unclassified.....	4
<b>Total.....</b>	<b>121</b>

## SUMMARY BY STATES.

Pennsylvania.....	54
New York.....	17
Maryland.....	8
New Mexico.....	7
New Jersey.....	6
Michigan.....	5
Delaware.....	4
Nicaragua.....	3
Ohio.....	3
Illinois.....	2
Nebraska.....	2
Texas.....	2
Virginia.....	2
Canada.....	1
Colorado.....	1
Dakota.....	1
Indiana.....	1
Kentucky.....	1
Louisiana.....	1
Montana.....	1
West Virginia.....	1

Total in Preparatory School..... 121

Total in the College..... 123

Whole number..... 244



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COMMITTEE  
ON  
**Trusts, Endowments and Scholarships.**

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Sharon Hill, Del. Co. Pa.

